UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,631	12/18/2000	Christopher Patrick	QCPA990347	5613

23696	7590	02/04/2005	

Qualcomm Incorporated
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EXAMINER
LIU, SHUWANG

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8,10-15,17-21,23 and 24* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-8, 10-15, 17-21, 23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed 11/11/04 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

Applicant's argument – "In the portion of Harrison, et al., cited by the examiner (Col. 8, line 65-Col. 10, line 34), the time difference or offset between code phases of satellites given by the expression (mi - mj) (See, Col. 10. lines 3 - 5). Moreover, the value of $(m_i - m_j)$ is unknown (See Col. 9, lines 5 - 6, and Col. 10. line 4). According to the reference conceptually, each integer value of $(m_i - m_j)$ must be checked, and the resulting position solution must be checked against known bounds for validity." Therefore, in Harrison, et al. "the code phase time difference is unknown; consequently, it cannot be determined and transmitted."

Examiner's response –As disclosed by the reference, "the object's location is accurately determined from propagation time differences between at least five satellites signals received at the traced object. The propagation time difference between signals from satellites I and j is defined as $\Delta_{ij} = \tau_j - \tau_I$, where τ_I is the signal propagation time from satellite I to the railcar" (see Col. 7, lines 21-25) and "The measured propagation time difference values are transmitted to a central station where the location of the object to be tracked is calculated based upon the

propagation time differences of the signals transmitted from the satellites" (see

abstract). The reference further discloses "In the present invention, the propagation

time differences Δ_{ij} are not directly measured at the railcar receiver. Instead, only the

code or bit phases associated with reception time t_R are measured, and these data, or

their differences including the satellite identifications, are transmitted to be the central

station" (column 8, lines 24-29). Furthermore, the reference summarizes method 1

having 5 steps and method 2 having 10 steps. Summarily, the reference not only

discloses determining a code phase of each among a plurality of received signals but

also generating a code phase difference (time difference between the code phases)

and transmitting the time difference between the code phases of at least one pair

among the plurality of received signals.

As applicant concludes that the code phase time difference is unknown because

the value of $(m_i - m_j)$ is unknown, the examiner suggests the applicant to read column

10, lines 15-56 of the reference and appendix A to understand how to determine $(m_i -$

$m_j)$ in the calculation and how to solve the equation (10) in order to obtain the time

difference between the code phases.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1, 3-8, 10-15, 17-21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Harrison et al. (US 5,752,218).

As shown in figures 1-6, Harrison et al. discloses:

(1) regarding claims 1 and 8:

a method comprising:

determining a code phase of each among a plurality of received signals, wherein said received signals are GPS (column 6, line 47-column 8, line 58); and

transmitting a time difference between the code phases of at least one pair among the plurality of received signals (column 7, lines 16-30, column 8, line 24-column 10, line 34 and abstract).

(2) regarding claims 15, 21 and 23:

An apparatus comprising:

a receiver (figure 1) configured to receive a plurality of signals;

a correlator (for example, 8 in figure 1) configured to determine a code phase for each among the plurality of received signals (column 6, lines 3-58, and column 6, line 47-column 8, line 58); and

a transmitter (4) configured to transmit a time difference between the code phases of at least one pair among the plurality of received signals (figure 1, column 4, lines 20-41, column 8, line 24-column 10, line 34, and abstract).

(3) regarding claims 3, 10 and 17:

wherein each among the plurality of received signals has a corresponding

periodic code (Gold code, column 6, line 51-67), and

wherein each among the code phases relates to a predetermined position

within the corresponding periodic code (column 6, line 51-58).

(4) regarding claims 4, 5, 11, 12, 18 and 19:

wherein each among the plurality of received signals is based at least in part on

a corresponding direct-sequence spread spectrum modulated signal (column 6, lines

3-13).

(5) regarding claims 6 and 13:

the method further comprising receiving a composite signal,

wherein each among the plurality of received signals is based at least in part on at

least a portion of the composite signal (column 6, lines 13-41).

(6) regarding claims 7, 14 and 20:

wherein the determining a code phase of each among a plurality of received

signals comprises calculating a correlation, for each among the plurality of received

signals, between a corresponding code sequence and a signal based at least in part

on the composite signal (column 6, lines 3-58, and column 6, line 47-column 8, line

58),

wherein each among the plurality of received signals has a corresponding

periodic code (Gold code, column 6, line 51-67), and

wherein each among the code phases relates to a corresponding

predetermined position within the corresponding periodic code, and

wherein the code sequence relates at least in part to the corresponding periodic code

(Gold code, column 6, line 51-67).

(7) regarding claim 24:

a reference receiver (16) configured to receive signals from a plurality of space

vehicles (12) and transmit information; and

a field receiver (14) configures to receive signals from a plurality of space

vehicles (12) and to receive the information,

wherein the reference receiver determines a reference code phase for each

among at least a first and a second one of the signals, and

wherein the information pertains at least to a time difference between the

reference code phase for the first and the second one of the signals (column 9, lines

10-column 10, line 67), and

wherein the field receiver determines a field code phase for the first one of the

signals, and

wherein the filed receiver determines a field code phase for the second one of

the signals at least in part from the information (column 8, line 65-column 10, line 34).

Conclusion

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Shuwang Liu whose telephone number is 571 272-3036.

The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin can be reached on 571 272-3056. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Shuwang Liu
Primary Examiner
Art Unit 2634

January 28, 2005